Literature Survey:

Prepare below table after reading and analysing IEEE Papers:

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| Sr. No | Title of Paper | Name of the Authors |  | Published Year | Remarks |
| 1 | Stress Detection with Machine Learning and Deep Learning using Multimodal Physiological Data | Pramod Bobade,  Vani M. |  | 2020 | This paper proposes different machine learning and deep learning techniques for stress detection on individuals using multimodal dataset recorded from wearable physiological and motion sensors, which can prevent a person from various stress related health problems. Data of sensor modalities like three axis acceleration (ACC), electrocardiogram (ECG), blood volume pulse (BVP), body temperature (TEMP), respiration (RESP), electromyogram (EMG) and electrodermal activity (EDA) are for three physiological conditions - amusement, neutral and stress states, are taken from WESAD dataset.  The accuracies for three-class (amusement vs. baseline vs. stress) and binary (stress vs. non-stress) classifications were evaluated and compared by using machine learning techniques like K-Nearest Neighbour, Linear Discriminant Analysis, Random Forest, Decision Tree, AdaBoost and Kernel Support Vector Machine.  Besides, simple feed forward deep learning artificial neural network is introduced for these three-class and binary classifications. During the study, by using machine learning techniques, accuracies of up to 81.65% and 93.20% are achieved for three-class and binary classification problems respectively, and by using deep learning, the achieved accuracy is up to 84.32% and 95.21% respectively. |
| 2 | A Decision Tree Optimised SVM Model for Stress Detection using Bio signals | Alana Paul Cruz, Aravind Pradeep, Kavali Riya Siva Sankar and Krishnaveni K. S |  | July 28 - 30, 2020 | They selected ECG as the bio signal and extracted its features. The advantage of taking ECG as the bio signal is, information about respiratory signals - EDR (ECG Derived Respiration) feature can be easily derived without any extra sensors. Among those unique features we chose ECG derived Respiration, Respiration Rate, QT interval. For training and validation of our new model we used Physionet’s “drivedb” database. Our proposed model uses Optimised Support Vector Machines (SVM) using decision trees. |
| 3 | Automatic Stress Detection Using Wearable Sensors and Machine Learning | Shruti Gedam, Sanchita Paul |  | 2020 | This examined and reviewed various stress detection approaches who uses low-cost wearable sensors for data collection and machine learning algorithms for predicting stress level of an individual. Researchers have found that stress level can be detected through some physiological measures like heart rate, heart rate variability and skin conductance. This paper aimed to provide a comprehensive review on various stress detection techniques and gives a reliable guideline towards more efficient detection of stress.  The physiological data is extracted using some stressor tests on the people. Some common stressor tests includes arithmetic calculations, questionnaire, mental tasks and working out in gym. There are a diversity of machine learning algorithms which are appropriate for stress detection. Among them Support Vector Machines (SVM), Logistic regression, K-Nearest Neighbour, Decision tree and Random Forest are most common. In this review, they summarized the various machine learning algorithms available in the literature that aim at detecting state of stress. |
| 4 | Machine Learning and IoT for Prediction and Detection of Stress | Mr.Purnendu Shekhar Pandey |  |  | It is important to inform the person about his unhealthy life style and even alarm him/her before any acute condition occurs. To detect the stress beforehand we have used heart beat rate as one of the parameters. Internet of Things (IoT) along with Machine Learning (ML) is used to alarm the situation when the person is in real risk. ML is used to predict the condition of the patient and IoT is used to communicate the patience about his/her acute stress condition.  According to a cardiac surgeon, it is difficult to predict age from heart rate as it is nonlinear, but we can use a person’s heart beat to predict whether that person is fit, unfit and overtrained or not, provided we have that person’s age. Based on heart beat we can predict whether a person is in Stress or not. Stress is one of the main factors that are affecting millions of lives. |
| 5 | Stress detection using deep neural networks | Russell Li1 and Zhandong Liu2 |  | August 2020 | The deep neural networks analyzed physiological data collected from chest-worn and wrist-worn sensors to perform two tasks. They tailored each neural network to analyse data from either the chest-worn (1D convolutional neural network) or wrist-worn (multilayer perceptron neural network) sensors. The first task was binary classifcation for stress detection, in which the networks differentiated between stressed and non-stressed states. The second task was 3-class classifcation for emotion classifcation, in which the networks differentiated between baseline, stressed, and amused states. The networks were trained and tested on publicly available data collected in previous studies.  The deep convolutional neural network achieved 99.80% and 99.55% accuracy rates for binary and 3-class classifcation, respectively.  The deep multilayer perceptron neural network achieved 99.65% and 98.38% accuracy rates for binary and 3-class classifcation, respectively. The networks’ performance exhibited a significant improvement over past methods that analyzed physiological signals for both binary stress detection and 3-class emotion classifcation. |